

SEQUENCE LISTING

<110> Veldman, Geertruda M.

<120> NEUTRALIZING ANTIBODIES AGAINST GDF-8 AND USES THEREFOR

<130> 08702.6020-00000

<160> 54

<170> PatentIn version 3.1

<210> 1

<211> 786

<212> DNA

<213> Homo sapiens

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cctgaccgat tctctgtctc caagtctggc tactcagcct ccctggccat cactgggctg 660  
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<210> 2

<211> 262

<212> PRT

<213> Homo sapiens

<400> 2

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20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Glu Arg Met Gly Pro Cys Thr Gly Gly Ser Cys Tyr Asp Thr Leu Gly  
100 105 110

Asn Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly  
115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu  
130 135 140

Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln Arg Val Thr Ile  
145 150 155 160

Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Ala Gly Tyr Asp Val His  
165 170 175

Trp Tyr Gln Gln Leu Pro Gly Ala Ala Pro Lys Leu Leu Ile Arg Gly  
180 185 190

Asn Gly Asn Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Val Ser Lys  
195 200 205

Ser Gly Tyr Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln Pro Ala Asp  
210 215 220

Glu Gly Val Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Ser Gly Ser  
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Lys Val Phe Gly Gln Gly Thr Lys Leu Thr Val Leu Gly Ala Ala Ala  
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His His His His His His  
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<210> 3

<211> 372

<212> DNA

<213> Homo sapiens

<400> 3

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| ccaggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac    | 180 |
| gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat   | 240 |
| ctgcaaatac acagcctgag agccgaggac acggccgtgt attactgtga gagaatgggg   | 300 |
| ccctgtactg gtggaagctg ctacgacacc cttggcaact ggggcccggg caccctggtc   | 360 |
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<212> PRT

<213> Homo sapiens

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Glu Arg Met Gly Pro Cys Thr Gly Gly Ser Cys Tyr Asp Thr Leu Gly  
100 105 110

Asn Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser  
115 120

<210> 5

<211> 336

<212> DNA

<213> Homo sapiens

<400> 5

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cttccaggcg cggcccccaa actcctcatc aggggtaatg gcaatcggcc ctcaggggtc 180  
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<210> 6

<211> 112

<212> PRT

<213> Homo sapiens

<400> 6

Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln  
 1 5 10 15

Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Ala Gly  
 20 25 30

Tyr Asp Val His Trp Tyr Gln Gln Leu Pro Gly Ala Ala Pro Lys Leu  
 35 40 45

Leu Ile Arg Gly Asn Gly Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
 50 55 60

Ser Val Ser Lys Ser Gly Tyr Ser Ala Ser Leu Ala Ile Thr Gly Leu  
 65 70 75 80

Gln Pro Ala Asp Glu Gly Val Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser  
 85 90 95

Leu Ser Gly Ser Lys Val Phe Gly Gln Gly Thr Lys Leu Thr Val Leu  
 100 105 110

<210> 7

<211> 774

<212> DNA

<213> Homo sapiens

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gcagactccg tgagggggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240  
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gggagcagct ccaacatcgg ggacgggttat gatgtacact ggtatcagca gcttccagga 540  
acagccccc aactcctcat ctatggtaac agtcacggc cctcaggggt cctgaccga 600  
ttctctggct ccaagtctga cacctctgcc tccctggcca tcaactgggt ccagggtgag 660  
gatgaggctg attatttctg ccaactcctat gacggcagtg tgagtggctg gattttcggc 720  
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<210> 8  
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<212> PRT  
<213> Homo sapiens

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Val Ile Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45  
Ser Ala Ile Ser Val Thr Gly Gly Ser Thr Ala Tyr Ala Asp Ser Val  
50 55 60

Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Thr Lys Gly Gln Trp Glu Arg Gly Ser Tyr Tyr Phe Asp Tyr Trp Gly  
100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro  
130 135 140

Pro Ser Val Ser Gly Ala Pro Gly Gln Arg Val Thr Ile Ser Cys Thr  
145 150 155 160

Gly Ser Ser Ser Asn Ile Gly Asp Gly Tyr Asp Val His Trp Tyr Gln  
165 170 175

Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Gly Asn Ser His  
180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Asp Thr  
195 200 205

Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln Val Glu Asp Glu Ala Asp  
210 215 220

Tyr Phe Cys His Ser Tyr Asp Gly Ser Val Ser Gly Trp Ile Phe Gly  
225 230 235 240

Gly Gly Thr Lys Leu Thr Val Leu Gly Ala Ala Ala His His His His  
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His His

<210> 9

<211> 363

<212> DNA

<213> Homo sapiens

<400> 9

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ccaggaagg ggctggaatg ggtctcagct attagtgtta ctggtggtag caccgcctac      180
gcagactccg tgagggggccg gttcaccatc tccagagaca attccaagaa caccgtgtat      240
ttgcaaatga atagcctgag agccgaggac acggccgtat attactgtac gaaaggacag      300
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<210> 10

<211> 121

<212> PRT

<213> Homo sapiens

<400> 10

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Gln Val Thr Leu Lys Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
20           25           30

Val Ile Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35           40           45

Ser Ala Ile Ser Val Thr Gly Gly Ser Thr Ala Tyr Ala Asp Ser Val
50           55           60

Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65           70           75           80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85           90           95

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Thr Lys Gly Gln Trp Glu Arg Gly Ser Tyr Tyr Phe Asp Tyr Trp Gly  
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Arg Gly Thr Leu Val Thr Val Ser Ser  
 115 120

<210> 11

<211> 336

<212> DNA

<213> Homo sapiens

<400> 11  
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 cctgaccgat tctctggctc caagtctgac acctctgctt ccctggccat cactgggctc 240  
 caggttgagg atgaggctga ttatttctgc cactcctatg acggcagtggt gaggggctgg 300  
 attttcggcg gagggaccaa gctgaccgtc ctaggt 336

<210> 12

<211> 111

<212> PRT

<213> Homo sapiens

<400> 12

Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln  
 1 5 10 15

Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Asp Gly  
 20 25 30

Tyr Asp Val His Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu  
 35 40 45

Leu Ile Tyr Gly Asn Ser His Arg Pro Ser Gly Val Pro Asp Arg Phe  
50 55 60

Ser Gly Ser Lys Ser Asp Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu  
65 70 75 80

Gln Val Glu Asp Glu Ala Asp Tyr Phe Cys His Ser Tyr Asp Gly Ser  
85 90 95

Val Ser Gly Trp Ile Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 13

<211> 747

<212> DNA

<213> Homo sapiens

<400> 13

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cctggacaag ggcttgagtg gatgggaata atcaacccta gtggtggtag cacaagctac 180  
gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac 240  
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aactgggggt tcgaccctg gggccaggga accctgggtca ccgtctcgag tggaggcggc 360  
ggttcaggcg gaggtggctc tggcggtggc ggaagtgcac tttcctatga gctgactcag 420  
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atctatgacg ataccagcg gccctcaggg atccctgggc gattctctgg ctccaactct 600  
gggaacacag ccaactctgac catcagcggg acccaggcta tggatgaggc tgactatattt 660  
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<210> 14

<211> 249

<212> PRT

<213> Homo sapiens

<400> 14

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
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Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
35 40 45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe  
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr  
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Glu Asn Trp Gly Phe Asp Pro Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
115 120 125

Gly Gly Gly Ser Ala Leu Ser Tyr Glu Leu Thr Gln Pro Pro Ser Val  
130 135 140

Ser Val Ser Pro Gly Gln Thr Ala Thr Ile Thr Cys Ser Gly His Ala  
145 150 155 160

Leu Gly Asp Lys Phe Val Ser Trp Tyr Gln Gln Gly Ser Gly Gln Ser  
165 170 175

Pro Val Leu Val Ile Tyr Asp Asp Thr Gln Arg Pro Ser Gly Ile Pro  
180 185 190

Gly Arg Phe Ser Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile  
195 200 205

Ser Gly Thr Gln Ala Met Asp Glu Ala Asp Tyr Phe Cys Gln Ala Trp  
210 215 220

Asp Ser Ser Phe Val Phe Gly Gly Gly Thr Lys Val Thr Val Leu Gly  
225 230 235 240

Ala Ala Ala His His His His His His  
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<210> 15

<211> 351

<212> DNA

<213> Homo sapiens

<400> 15

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cctggacaag ggcttgagtg gatgggaata atcaacccta gtggtggtag cacaagctac 180  
gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac 240  
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagacgag 300  
aactgggggt tcgaccctg gggccaggga accctgggtca ccgtctcgag t 351

<210> 16

<211> 117

<212> PRT

<213> Homo sapiens

<400> 16

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
35 40 45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe  
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr  
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Glu Asn Trp Gly Phe Asp Pro Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ser  
115

<210> 17

<211> 315

<212> DNA

<213> Homo sapiens

<400> 17

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cagtcccctg tattgggtcat ctatgacgat acccagcggc cctcagggat ccctgggcca 180

ttctctggct ccaactctgg gaacacagcc actctgacca tcagcgggac ccaggctatg 240

gatgaggctg actatTTTTG tcaggcgtgg gacagcagct tcgtattcgg cggagggacc 300

aaggtcaccg tccta 315

<210> 18

<211> 105

<212> PRT

<213> Homo sapiens

<400> 18

Ser Tyr Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ser Pro Gly Gln  
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Thr Ala Thr Ile Thr Cys Ser Gly His Ala Leu Gly Asp Lys Phe Val  
20 25 30

Ser Trp Tyr Gln Gln Gly Ser Gly Gln Ser Pro Val Leu Val Ile Tyr  
35 40 45

Asp Asp Thr Gln Arg Pro Ser Gly Ile Pro Gly Arg Phe Ser Gly Ser  
50 55 60

Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Met  
65 70 75 80

Asp Glu Ala Asp Tyr Phe Cys Gln Ala Trp Asp Ser Ser Phe Val Phe  
85 90 95

Gly Gly Gly Thr Lys Val Thr Val Leu  
100 105

<210> 19

<211> 774

<212> DNA

<213> Homo sapiens

<400> 19

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| ccaggaagg ggctggaatg ggtctcagct attagtgtta ctggtggtag caccgcctac   | 180 |
| gcagactccg tgaggggccc gttcaccatc tccagagaca attccaagaa cagctgtat   | 240 |
| ttgcaaatga atagcctgag agccgaggac acggccgtat attactgtgc gaaaggacag  | 300 |

tgggaacggg gaagttacta ctttgactac tggggccggg gaaccctggt caccgtctcg 360  
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<210> 20

<211> 258

<212> PRT

<213> Homo sapiens

<400> 20

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr  
 20 25 30

Val Ile Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

Ser Ala Ile Ser Val Thr Gly Gly Ser Thr Ala Tyr Ala Asp Ser Val  
 50 55 60

Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Lys Gly Gln Trp Glu Arg Gly Ser Tyr Tyr Phe Asp Tyr Trp Gly  
 100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro  
130 135 140

Pro Ser Val Ser Gly Ala Pro Gly Gln Arg Val Thr Ile Ser Cys Thr  
145 150 155 160

Gly Ser Ser Ser Asn Ile Gly Asp Gly Tyr Asp Val His Trp Tyr Gln  
165 170 175

Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Gly Asn Ser His  
180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr  
195 200 205

Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Glu Ala Asp  
210 215 220

Tyr Tyr Cys His Ser Tyr Asp Gly Ser Val Ser Gly Trp Ile Phe Gly  
225 230 235 240

Gly Gly Thr Lys Leu Thr Val Leu Gly Ala Ala Ala His His His His  
245 250 255

His His

<210> 21

<211> 363

<212> DNA

<213> Homo sapiens

<400> 21

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ccaggaagg ggctggaatg ggtctcagct attagtgtta ctggtggtag cacggcctac 180



gcagactccg tgaggggccc gttcaccatc tccagagaca attccaagaa cacgctgtat 240  
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 agt 363

<210> 22

<211> 121

<212> PRT

<213> Homo sapiens

<400> 22

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr  
 20 25 30

Val Ile Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

Ser Ala Ile Ser Val Thr Gly Gly Ser Thr Ala Tyr Ala Asp Ser Val  
 50 55 60

Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Lys Gly Gln Trp Glu Arg Gly Ser Tyr Tyr Phe Asp Tyr Trp Gly  
 100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser  
 115 120

<210> 23

<211> 333

<212> DNA

<213> Homo sapiens

<400> 23

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cttcaggaa cagcccccaa actcctcatc tatggtaaca gtcacgggcc ctcaggggtc      180
cctgaccgat tctctggctc caagtctggt acctctgcct ccctggccat cactgggctc      240
caggctgagg atgaggctga ttattactgc cactcctatg acggcagtgt gagtggctgg      300
attttcggcg gagggaccaa gctgaccgtc cta                                     333

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<210> 24

<211> 111

<212> PRT

<213> Homo sapiens

<400> 24

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Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln
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Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Asp Gly
          20           25           30

Tyr Asp Val His Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu
          35           40           45

Leu Ile Tyr Gly Asn Ser His Arg Pro Ser Gly Val Pro Asp Arg Phe
          50           55           60

Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu
65           70           75           80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys His Ser Tyr Asp Gly Ser
          85           90           95

Val Ser Gly Trp Ile Phe Gly Gly Gly Thr Lys Leu Thr Val Leu

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100

105

110

<210> 25

<211> 747

<212> DNA

<213> Homo sapiens

<400> 25

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| caggtgcagc | tggtgcaatc | tggggctgag | gtgaagaagc  | ctggggcctc | agtgaaggtt | 60  |
| tcctgcaagg | catctggata | caccttcacc | agctactata  | tgcactgggt | gcgacaggcc | 120 |
| cctggacaag | ggcttgagtg | gatgggaata | atcaacccta  | gtggtggtag | cacaagctac | 180 |
| gcacagaagt | tccagggcag | agtcaccatg | accagggaca  | cgtccacgag | cacagtctac | 240 |
| atggagctga | gcagcctgag | atctgaggac | acggccgtgt  | attactgtgc | gagagacgag | 300 |
| aactgggggt | tcgaccctg  | gggccaggga | accctgggtca | ccgtctcgag | tggaggcggc | 360 |
| ggttcaggcg | gaggtggctc | tggcggtggc | ggaagtgcac  | tttcctatga | gctgactcag | 420 |
| ccaccctcag | tgctcgtgtc | tccaggacag | acagccagca  | ttacctgtc  | tggacatgca | 480 |
| ctgggggaca | aatttgtttc | ctggtatcag | cagaagccag  | gccagtcccc | tgtattggtc | 540 |
| atctatgacg | ataccagcg  | gccctcaggg | atccctgagc  | gattctctgg | ctccaactct | 600 |
| gggaacacag | ccactctgac | catcagcggg | accaggcta   | tggatgaggc | tgactattac | 660 |
| tgtcaggcgt | gggacagcag | cttcgtattc | ggcggaggga  | ccaaggtcac | cgtcctaggt | 720 |
| gcggccgcac | atcaccatca | ccatcac    |             |            |            | 747 |

<210> 26

<211> 249

<212> PRT

<213> Homo sapiens

<400> 26

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Val | Gln | Leu | Val | Gln | Ser | Gly | Ala | Glu | Val | Lys | Lys | Pro | Gly | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
35 40 45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe  
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr  
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Glu Asn Trp Gly Phe Asp Pro Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
115 120 125

Gly Gly Gly Ser Ala Leu Ser Tyr Glu Leu Thr Gln Pro Pro Ser Val  
130 135 140

Ser Val Ser Pro Gly Gln Thr Ala Ser Ile Thr Cys Ser Gly His Ala  
145 150 155 160

Leu Gly Asp Lys Phe Val Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ser  
165 170 175

Pro Val Leu Val Ile Tyr Asp Asp Thr Gln Arg Pro Ser Gly Ile Pro  
180 185 190

Glu Arg Phe Ser Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile  
195 200 205

Ser Gly Thr Gln Ala Met Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp  
210 215 220

Asp Ser Ser Phe Val Phe Gly Gly Gly Thr Lys Val Thr Val Leu Gly  
225 230 235 240

Ala Ala Ala His His His His His His

245

<210> 27

<211> 351

<212> DNA

<213> Homo sapiens

<400> 27

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cctggacaag ggcttgagtg gatgggaata atcaacccta gtggtggtag cacaagctac      180
gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac      240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagacgag      300
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<210> 28

<211> 117

<212> PRT

<213> Homo sapiens

<400> 28

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Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1           5           10           15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
          20           25           30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
          35           40           45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe
          50           55           60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65           70           75           80

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Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Glu Asn Trp Gly Phe Asp Pro Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ser  
115

<210> 29

<211> 315

<212> DNA

<213> Homo sapiens

<400> 29  
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cagtcccctg tattgggtcat ctatgacgat acccagcggc cctcagggat ccctgagcga 180  
ttctctggct ccaactctgg gaacacagcc actctgacca tcagcgggac ccaggctatg 240  
gatgaggctg actattactg tcaggcgtgg gacagcagct tcgtattcgg cggagggacc 300  
aaggtcaccg tccta 315

<210> 30

<211> 105

<212> PRT

<213> Homo sapiens

<400> 30

Ser Tyr Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ser Pro Gly Gln  
1 5 10 15

Thr Ala Ser Ile Thr Cys Ser Gly His Ala Leu Gly Asp Lys Phe Val  
20 25 30

Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Val Leu Val Ile Tyr  
35 40 45

Asp Asp Thr Gln Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser  
50 55 60

Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Met  
65 70 75 80

Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Asp Ser Ser Phe Val Phe  
85 90 95

Gly Gly Gly Thr Lys Val Thr Val Leu  
100 105

<210> 31

<211> 5

<212> PRT

<213> Homo sapiens

<400> 31

Ser Tyr Tyr Met His  
1 5

<210> 32

<211> 17

<212> PRT

<213> Homo sapiens

<400> 32

Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe Gln  
1 5 10 15

Gly

<210> 33

<211> 8

<212> PRT

<213> Homo sapiens

<400> 33

Asp Glu Asn Trp Gly Phe Asp Pro  
1 5

<210> 34

<211> 11

<212> PRT

<213> Homo sapiens

<400> 34

Ser Gly His Ala Leu Gly Asp Lys Phe Val Ser  
1 5 10

<210> 35

<211> 7

<212> PRT

<213> Homo sapiens

<400> 35

Asp Asp Thr Gln Arg Pro Ser  
1 5

<210> 36

<211> 7

<212> PRT

<213> Homo sapiens



<400> 36

Gln Ala Trp Asp Ser Ser Phe  
1 5

<210> 37

<211> 5

<212> PRT

<213> Homo sapiens

<400> 37

Arg Tyr Val Ile Asn  
1 5

<210> 38

<211> 17

<212> PRT

<213> Homo sapiens

<400> 38

Ala Ile Ser Val Thr Gly Gly Ser Thr Ala Tyr Ala Asp Ser Val Arg  
1 5 10 15

Gly

<210> 39

<211> 12

<212> PRT

<213> Homo sapiens

<400> 39

Gly Gln Trp Glu Arg Gly Ser Tyr Tyr Phe Asp Tyr

1 5 10

<210> 40

<211> 14

<212> PRT

<213> Homo sapiens

<400> 40

Thr Gly Ser Ser Ser Asn Ile Gly Asp Gly Tyr Asp Val His  
1 5 10

<210> 41

<211> 7

<212> PRT

<213> Homo sapiens

<400> 41

Gly Asn Ser His Arg Pro Ser  
1 5

<210> 42

<211> 6

<212> PRT

<213> Homo sapiens

<400> 42

His Ser Tyr Asp Gly Ser  
1 5

<210> 43

<211> 5

<212> PRT

<213> Homo sapiens

<400> 43

Ser Tyr Ala Met Ser  
1 5

<210> 44

<211> 17

<212> PRT

<213> Homo sapiens

<400> 44

Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val Lys  
1 5 10 15

Gly

<210> 45

<211> 15

<212> PRT

<213> Homo sapiens

<400> 45

Met Gly Pro Cys Thr Gly Gly Ser Cys Tyr Asp Thr Leu Gly Asn  
1 5 10 15

<210> 46

<211> 14

<212> PRT

<213> Homo sapiens

<400> 46

Thr Gly Ser Ser Ser Asn Ile Gly Ala Gly Tyr Asp Val His  
1 5 10

<210> 47

<211> 7

<212> PRT

<213> Homo sapiens

<400> 47

Gly Asn Gly Asn Arg Pro Ser  
1 5

<210> 48

<211> 12

<212> PRT

<213> Homo sapiens

<400> 48

Gln Ser Tyr Asp Ser Ser Leu Ser Gly Ser Lys Val  
1 5 10

<210> 49

<211> 109

<212> PRT

<213> Homo sapiens

<400> 49

Asp Phe Gly Leu Asp Cys Asp Glu His Ser Thr Glu Ser Arg Cys Cys  
1 5 10 15

Arg Tyr Pro Leu Thr Val Asp Phe Glu Ala Phe Gly Trp Asp Trp Ile  
20 25 30

Ile Ala Pro Lys Arg Tyr Lys Ala Asn Tyr Cys Ser Gly Glu Cys Glu  
35 40 45

Phe Val Phe Leu Gln Lys Tyr Pro His Thr His Leu Val His Gln Ala  
50 55 60

Asn Pro Arg Gly Ser Ala Gly Pro Cys Cys Thr Pro Thr Lys Met Ser  
65 70 75 80

Pro Ile Asn Met Leu Tyr Phe Asn Gly Lys Glu Gln Ile Ile Tyr Gly  
85 90 95

Lys Ile Pro Ala Met Val Val Asp Arg Cys Gly Cys Ser  
100 105

<210> 50

<211> 320

<212> DNA

<213> Homo sapiens

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cctggaaggc agatagcagc cccgtcaagg cgggagtgga gaccaccaca ccctccaaac 180  
aaagcaacaa caagtacgcg gccagcagct atctgagcct gacgcctgag cagtgggaagt 240  
cccacagaag ctacagctgc caggtcacgc atgaaggag caccgtggag aagacagtgg 300  
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<210> 51

<211> 106

<212> PRT

<213> Homo sapiens

<400> 51

Gly Gln Pro Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser

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1          5          10          15
Glu Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp
      20                      25                      30
Phe Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro
      35                      40                      45
Val Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn
      50                      55                      60
Lys Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys
      65                      70                      75                      80
Ser His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val
      85                      90                      95
Glu Lys Thr Val Ala Pro Thr Glu Cys Ser
      100                      105

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<210> 52

<211> 992

<212> DNA

<213> Homo sapiens

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| gcacagcggc | cctgggctgc | ctggtcaagg | actacttccc | cgaaccggtg  | acgggtgtcgt |  | 120 |
| ggaactcagg | cgccctgacc | agcggcgtgc | acaccttccc | ggctgtccta  | cagtcctcag  |  | 180 |
| gactctactc | cctcagcagc | gtggtgaccg | tgccctccag | cagcttgggc  | accagacct   |  | 240 |
| acatctgcaa | cgtgaatcac | aagcccagca | acaccaaggt | ggacaagaaa  | gttgagccca  |  | 300 |
| aatcttgtga | caaaactcac | acatgcccac | cgtgcccagc | acctgaactc  | ctggggggac  |  | 360 |
| cgtcagtctt | cctcttcccc | ccaaaacca  | aggacacct  | catgatctcc  | cggacccctg  |  | 420 |
| aggtcacatg | cgtggtggtg | gacgtgagcc | acgaagacc  | tgagggtcaag | ttcaactggt  |  | 480 |
| acgtggacgg | cgtggaggtg | cataatgcc  | agacaaagcc | gcgggaggag  | cagtacaaca  |  | 540 |
| gcacgtaccg | tgtggtcagc | gtcttcaccg | tctgcacca  | ggactggctg  | aatggcaagg  |  | 600 |

agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa accatctcca 660  
 aagccaaagg gcagccccga gaaccacagg tgtacacctt gcccccatcc cgggaggaga 720  
 tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc agcgacatcg 780  
 ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg cctcccgtgc 840  
 tggactccga cggctccttc ttctctata gcaagctcac cgtggacaag agcaggtggc 900  
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<210> 53

<211> 330

<212> PRT

<213> Homo Sapiens

<400> 53

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
 1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr  
 20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
 35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser  
 50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys  
 85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
 100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro

|   |     |         |
|---|-----|---------|
| 115   | 120 | 125     |
| Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys |     |         |
| 130   | 135 | 140     |
| Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp |     |         |
| 145   | 150 | 155 160 |
| Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu |     |         |
| 165   | 170 | 175     |
| Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu |     |         |
| 180   | 185 | 190     |
| His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn |     |         |
| 195   | 200 | 205     |
| Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly |     |         |
| 210   | 215 | 220     |
| Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu |     |         |
| 225   | 230 | 235 240 |
| Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr |     |         |
| 245   | 250 | 255     |
| Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn |     |         |
| 260   | 265 | 270     |
| Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe |     |         |
| 275   | 280 | 285     |
| Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn |     |         |
| 290   | 295 | 300     |
| Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr |     |         |
| 305   | 310 | 315 320 |
| Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys                         |     |         |
| 325   | 330 |         |

<210> 54



<211> 6

<212> PRT

<213> Any

<220>

<221> MISC\_FEATURE

<222> (2)..(3)

<223> Any amino acid

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<222> (5)..(5)

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<400> 54

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